

PATENT SPECIFICATION



Application Date : Oct. 19, 1920. No. 29,518/20.

152,664

Complete Accepted : Jan. 19, 1922.

COMPLETE SPECIFICATION.

Improved Wheels for Vehicles Intended to Move Over Soft Ground.

I, GIUSEPPE GARANZINI, an Italian subject of Novara, Italy, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention has for its object wheels adapted for use with motor vehicles, traction engines or tractors, characterised by the arrangement of their rims, which instead of being a continuous band as in ordinary wheels, consist only of a given number of segments regularly spaced from one another, the said wheels with their incomplete rims being coupled in pairs in such a manner that the full segments of the one correspond with the spaces or gaps of the other, or they may be arranged in any other manner so that the equivalent effect is obtained when the wheels are mounted on a vehicle.

The arrangement is based on the following principle:—A wheel when turning can obtain a grip sufficient to effect traction even though the segments comprising its rim are not arranged in the same plane.

The accompanying drawing illustrates by way of example one method of carrying out the invention and two methods of applying the wheel to vehicles.

Ordinary wheels, see for example Figs. 1 and 2, present the defect that when travelling over soft (muddy or sandy) ground they cut a furrow into which they sink to such an extent that the effort necessary to rise over the mound of soil formed in front of the rim becomes too great for the grip between the ground and the wheel, so that the furrow is cut deeper and deeper until it is impossible for the wheel to get free from it.

Suppose the rim A of the wheel R to be composed of the six segments 1—2—3—

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4—5—6, connected together and fixed to the spokes radiating from the hub B mounted on an axle C. According to this invention there can be substituted for the wheel A, a pair of wheels R¹—R¹¹ (Fig. 5) having hubs B¹—B¹¹ each with 6 spokes, the one (Fig. 3) carrying the three rim segments 1¹—3¹—5¹, while the other (Fig. 4) carries the three rim segments 2¹¹—4¹¹—6¹¹), the segments of the one being so arranged as to correspond with the spaces or gaps between the segments of the other when the two hubs B¹—B¹¹ are rigidly fixed on a common axle C¹. This construction may be applied to wheels with rims divided into any number of segments.

Suppose that a vehicle provided with a pair of wheels arranged as shown in Fig. 5 is rolling over soft, muddy or sandy ground, the wheel R¹, resting on the ground by means of the rim segment 1¹ tends to cut a furrow from which it afterwards cannot be removed. When however the wheel R¹, continuing its rotation, presents the space between the segments 1¹—3¹ to the ground; the coupled wheel R¹¹ at the same moment comes in contact with the ground at a point where the surface has not been disturbed, with the edge E of the segment 2¹¹, and continuing to turn disengages the wheel R¹, while the vehicle continues to move, being supported by the segment 2¹¹.

If the last mentioned segment sticks fast, it is in its turn disengaged by the segment 3¹ of the wheel R¹, and so on.

The rim segments may be of larger or smaller size according to the degree of softness of the ground to be traversed, and they may be provided with projections or gripping teeth. The arrangement of the peripheral segments may also be such that one segment can enter into

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action just before the preceding segment on the coupled wheel has quite left the ground.

5 These wheels with incomplete rims as shown in Fig. 5 may also be combined in a vehicle by other means than coupling in pairs. Figs. 6 and 7 show by way of example two methods of applying the invention, in which the wheels are conveniently arranged on parallel axes instead of being coupled in pairs on one axis.

10 The constructive forms one may adopt when employing the wheels forming the object of this invention are infinitely variable, as are the materials which may be employed in their construction.

15 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A wheel for vehicles adapted to travel over soft ground characterised by

the employment of a rim, composed of a 25 given number of segments, evenly distanced from one another at the periphery of the wheel, and separated from one another by spaces.

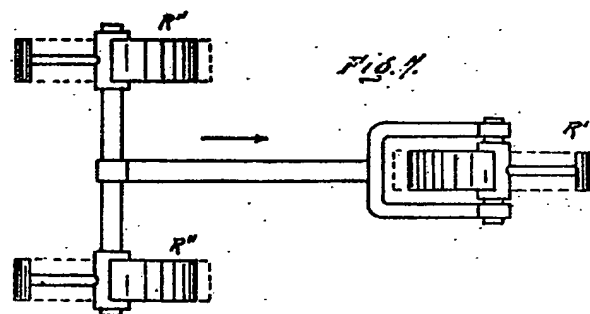
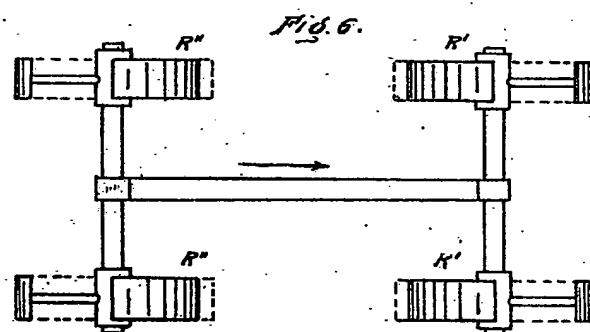
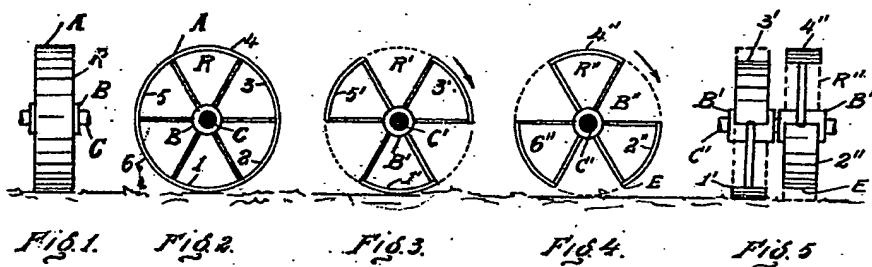
2. Arrangement in which wheels of the 30 type claimed in Claim 1 are employed coupled in pairs, each pair of wheels being mounted on the same axle of the vehicle in such a way that the segments of one wheel correspond with the spaces of the 35 wheel to which it is coupled.

3. Arrangement in which wheels of the type claimed in Claim 1 are mounted on a vehicle so that the wheels on one axle have a corresponding wheel or wheels 40 upon another axle, parallel to the first, and the segments of the wheels on one axle correspond with the spaces of the wheel or wheels on the other axle.

Dated this 19th day of October, 1920. 45

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[This Drawing is a reproduction of the Original on a reduced scale.]